Polynomial Functions

1. Create a polynomial that has multiplicity 5 and exactly one real zero.
2. Create a polynomial that has exactly two zeros which are complex conjugates.
3. F(x) is a polynomial function of degree 4 whose coefficients are real numbers, and you know three of its zeros are 5, 1+2i, 1-2i. Could the remaining zero be imaginary; why or why not?

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1. Find the remainder when 2x100− 17x348 +6x +19 is divided by x + 2.
2. Is x − 3 a factor of x26−3x40+ x7 ?
3. Create a polynomial that has the following characteristics:

 Crosses the x-axis at 8 and -2, Touches the x-axis at 3 and is above the x-axis between -2 and 3.

1. A cardboard box has a square base with each edge of the base having length x inches as shown in the figure. The total length of all 12 edges of the box is 132 in.



1. Write an expression for the volume of the box in terms of x
2. Graph your function from part a and use your calculator to estimate the dimensions that would yield maximum area.



1. Is the degree of the polynomial represented in this graph even or odd?
2. Is the leading coefficient positive or negative and why??
3. Is the function even, odd, or neither and why?
4. Is x² a factor of the polynomial?
5. What is the minimum degree of the polynomial?
6. Formulate a polynomial whose graph could look like the one shown.